## Amendments to the Claims

The listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1.-7. (Canceled)

8. (Previously Presented) A method of mixing chemicals comprising:

flowing a chemical into a valve system having a tube of a known volume;

filling said tube with said chemical, wherein filling said tube generates a measured amount of said chemical approximately equal to the known volume of the tube;

flowing DI water into a first conduit and into a second conduit, wherein said DI water in said first conduit flows into said tube to push said measured amount of chemical into a third conduit;

combining the flow of said measured amount of chemical and said DI water in said third conduit with said flow of DI water in said second conduit; and

dispensing said combined flow onto a spinning wafer.

9. (Original) The method claim 8, wherein said valve system comprises a 6-port valve.

10. (Original) The method of claim 8, wherein said valve system comprises two 3-port valves.

11. (Previously Presented) A method of mixing chemicals comprising:

flowing a chemical into a first valve system having a first tube of a known volume and filling said first tube with said chemical to generate a measured amount of said chemical;

flowing DI water into a second valve system having a second tube of a known volume and filling said second tube with said DI water to generate a measured amount of said DI water; and

flowing an inert gas into said first and second valve systems to push said measured amount of said chemical and said measured amount of said DI water into a chamber where said measured amount of chemical and said measured amount of DI water are mixed together.

12. (Original) The method of claim 11, wherein said first and said second valve systems each comprise a 6-port valve.

13. (Original) The method of claim 11, wherein said first and second valve systems each comprise two 3-port valves.

14. – 17. (Canceled)

18. (Previously Presented) The method of claim 11, wherein said first and second valve systems comprise a combination of a 6-port valve and two 3-port valves.

19. (Currently Amended) A method of generating a measured amount of a liquid chemical in a single semiconductor wafer etching or cleaning process comprising:

flowing a liquid chemical into a valve system having a tube of a known volume;

filling said tube with said known volume with said liquid chemical, wherein filling said tube generates a measured amount of said liquid chemical approximately equal to the known volume of the tube;

wherein the measured amount of liquid chemical is pushed out of the tube with a flushing fluid, comprising a precisely measured amount of DI water;

mixing precisely the measured amount of the liquid chemical with ~~precisely~~ the precisely measured DI water in a pressurized chamber;

wherein the pressurized chamber has an internal pressure throughout the chamber that is substantially greater than one atmosphere; and

applying approximately the entire chemical mixture within the pressurized chamber to a single wafer in a single wafer process, wherein an inert gas pushes the chemical mixture through a dispenser or spray nozzle onto the wafer;

wherein the applied chemical mixture is of a known measured concentration.

20. (Previously Presented) The method of claim 19, wherein said valve system comprises a 6-port valve.

21. (Previously Presented) The method of claim 19, wherein said valve system comprises two 3-port valves.

22. (Previously Presented) The method of claim 19, further comprising the step of changing the amount of liquid chemical used by changing the volume of said tube.

23. (Currently Amended) A method of generating a measured amount of a liquid chemical in a single semiconductor wafer process comprising:

flowing a liquid chemical into a valve system having a tube of a known volume;

filling said tube with said known volume with said liquid chemical, wherein filling said tube generates a measured amount of said liquid chemical approximately equal to the known volume of the tube;

wherein the said valve system changes from a charging mode of the chemical to a discharging mode of the resulting measured chemical by performing a single change of state of a single multiport valve;

wherein, precisely the measured amount of liquid chemicals is applied by pushing the chemicals out of the tube with a flushing fluid, comprising an inert gas;

separating the measured amount of liquid chemical and the inert gas with a hydrophobic membrane;

applying precisely said measured amount of liquid chemical to a semiconductor wafer in a single semiconductor wafer process; and

wherein the applied liquid chemical is of a known measured concentration.

24. (Previously Presented) The method of claim 23, wherein the said valve system changes from a discharging mode of the resulting measured liquid chemical

to the charging mode of the liquid chemical by performing another single change of state of the single multiport valve.

25. (Previously Presented) The method of claim 23, further comprising the steps of changing the amount of liquid chemical used by changing the volume of said tube.

26. (Currently Amended) A method of mixing chemicals comprising:

flowing a first liquid chemical into a valve system having a tube of a known volume;

filling said tube with said first liquid chemical, wherein filling said tube generates a measured amount of said first liquid chemical approximately equal to the known volume of the tube;

flowing a second liquid chemical into said valve system to push only said measured amount of said first liquid chemical into a chamber with said second liquid chemical;

continuing to flow said second liquid chemical into said chamber until a predetermined level is reached in said chamber to form a mixed solution of a known measured concentration;

wherein said chamber is pressurized, wherein the internal pressure throughout the chamber is substantially greater than one atmosphere; and

dispensing approximately the entire chemical mixture within the chamber onto a wafer;

wherein an inert gas pushes the chemical mixture out of the chamber.

27. (Previously Presented) The method of claim 26, wherein the second liquid chemical is DI water.

28. (Previously Presented) The method of claim 26, further comprising the steps of changing the amount of liquid chemical used by changing the volume of said tube.

29. (Previously Presented) The method of claim 26, further comprising dispensing said mixed solution onto a single spinning wafer by pressurizing said chamber.

30. (Previously Presented) The method of claim 26, wherein said valve system comprises a 6-port valve.

31. (Previously Presented) The method of claim 26, wherein said valve system comprises two 3-port valves.

32. (Currently Amended) A method of mixing chemicals comprising:

flowing a first liquid chemical into a first valve system having a first tube of a known volume and completely filling said first tube with said first liquid chemical to generate a measured amount of said first liquid chemical;

flowing a second liquid chemical into a second valve system having a second tube of a known volume and completely filling said second tube with said second liquid chemical to generate a measured amount of said second liquid chemical;

wherein, the first and second tubes are external to the valves in the first and second valve systems;

flowing a first and second flushing fluid into said first and second valve systems, respectively, to discharge only said measured amount of said first liquid chemical into a first exhaust unit and only said measured amount of said second liquid chemical into a second exhaust unit, wherein precisely said measured amount of first liquid chemical and precisely said measured amount of second liquid chemical are mixed together, forming a chemical mixture; ~~and~~

wherein, at least one of said first and second flushing fluids have an approximately know volume; and

dispensing the chemical mixture onto a wafer, wherein an inert gas pushes the chemical mixture out onto the wafer with an absolute pressure substantially greater than one atmosphere.

33. (Previously Presented) The method of claim 32, wherein said first and second exhaust units comprise a single reservoir.

34. (Previously Presented) The method of claim 32, wherein the first flushing fluids are selected from a group consisting of the said second liquid chemical, the said second flushing fluid, DI water, and an inert gas.

35. (Previously Presented) The method of claim 34, wherein the second flushing fluids are selected from a group consisting of the said first liquid chemical, the said first flushing fluid, DI water, and an inert gas.

36. (Previously Presented) The method of claim 32, wherein said first and said second valve systems each comprise a 6-port valve.

37. (Previously Presented) The method of claim 32, wherein said first and second valve systems each comprise two 3-port valves.

38. (Previously Presented) The method of claim 32, wherein said first and second valve systems comprise a combination of a 6-port valve and two 3-port valves.

39. (Previously Presented) A method of mixing chemicals comprising:

flowing a first chemical into a valve system having a first tube of a known volume and completely filling said first tube with said first chemical to generate a measured amount of said first chemical;

flowing a second chemical through a flow control valve and split into both the valve system and into a first control valve, wherein the second chemical pushes said measured amount of said first chemical, from the valve system, to generate a first chemical mixture, that feeds into a second control valve; and

mixing said first chemical mixture from the second control valve and said second chemical from the said first control valve.

40. (Previously Presented) The method of claim 39, wherein said valve system comprises a 6-port valve.

41. (Previously Presented) The method of claim 39, wherein said valve system comprise two 3-port valves.

42. (Previously Presented) The method of claim 39, wherein the said second chemical comprises DI water.